

New or Little Known *Carabus* and *Cychrus* (Coleoptera,
Carabidae) from the Qinling Mountains in
Shaanxi Province, Central China

Yûki IMURA

Shinohara-chô 1249-8, Kôhoku-ku, Yokohama, 222 Japan

Abstract Two new species and four new subspecies of the genus *Carabus* (s. lat.) and two new subspecies of the genus *Cychrus* are described from the Qinling Mountains in Shaanxi Province, Central China: *Carabus* (*Rhigocarabus*) *zhubajie* sp. nov., *C. (Hypsocarabus)* *latro qinlingensis* subsp. nov., *C. (Tomocarabus)* *shaheshang* sp. nov., *C. (Pagocarabus)* *crassesculptus qunqingicolor* subsp. nov., *C. (Pseudocranion)* *taibaishanicus fani* subsp. nov., *C. (Eccoptolabus)* *exiguus fanianus* subsp. nov., *Cychrus* *bispinosus baojiensis* subsp. nov., and *C. bispinosus huxianensis* subsp. nov.

The Qinling Mountains lie from east to west for about 400 km in the southern part of Shaanxi Province, Central China, with the highest point marked by Mt. Taibai Shan at the central part, which attains to a height of 3,767 m. Since the carabid fauna of this mountain range has not been intensively investigated as yet, our knowledge is no more than fragmentary even on the comparatively well-known genera *Carabus* (s. lat.) and *Cychrus*.

Recently, I had an opportunity to examine a long series of examples of carabid beetles collected from several localities on the Qinling Mountains including rather high altitudinal areas. The collection contains some unnamed forms of the genera *Carabus* (s. lat.) and *Cychrus*, and I am going to describe eight new taxa in the present paper.

The abbreviations employed herein are the same as those explained in my previous papers, and the holotypes of all the newly described taxa are preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, and the paratypes are deposited in my collection.

Before going further, I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the manuscript of this paper. Thanks are also due to Drs. Olaf JÄGER and Rüdiger KRAUSE of the Staatliches Museum für Tierkunde, Dresden, who kindly took the trouble for loaning me the holotype of *Carabus rugosissimus* BREUNING, and to Messrs. Helmut SCHÜTZE, Gleichen, Satoshi KOIWAYA, Tokyo, and Pin-Jun FAN, Xi'an, who kindly supported this study in various ways.

1. *Carabus* (*Rhigocarabus*) *zhubajie* IMURA, sp. nov.

(Figs. 1, 7)

Length: 19.4–21.1 mm (from apical margin of clypeus to apices of elytra).

Coppery with faint red-purplish lustre. Elevated parts of elytra and venter black. Appendages also black, though the mandibles, buccal appendages and basal parts of antennae are reddish brown as well as tibiae and tarsi.

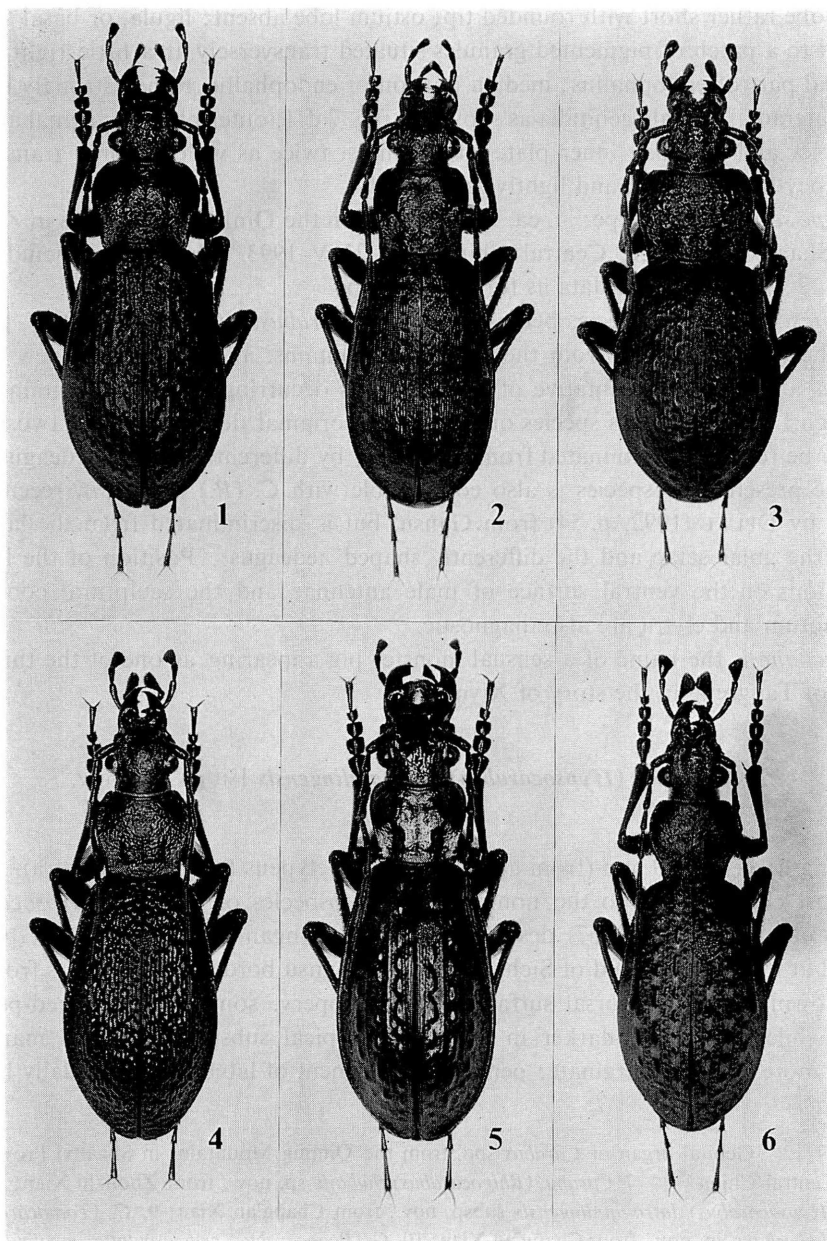
Head except for mandibles subquadrate, a little wider than long, with large and strongly protrudent eyes; apical margin of labrum slightly emarginate; clypeus subquadrate, a little narrower than labrum; frontal furrows shallow, with the surface weakly and irregularly rugulose; frons slightly convex above, with the surface weakly rugose and sparsely punctulate; mandibles short and stout, strongly arcuate inwards, and sharply pointed at the apices; retinaculum of mandible bidentate, the right one being a little smaller than the left; apical segments of palpi not so widely dilated in both sexes; penultimate segment of labial palpus bisetose; median tooth of mentum triangularly protrudent anteriad though a little shorter than lateral lobes, with the apex not sharply pointed; submentum bisetose, with the surface smooth; antennae filiform, reaching the middle of elytra in male and reaching basal two-fifths of them in female, pubescent from segment 5, with hairless ventral depressions from segment 7 to 9 in male; relative lengths of scape and segments 2–4 as follows:— 1: 0.56: 1: 0.68.

Pronotum subcordate, wider than long, widest at about the middle, more strongly narrowed towards apex than towards base; PW/HW 1.35–1.38 (M 1.37), PW/PL 1.28–1.31 (M 1.29), PW/PAW 1.56–1.66 (M 1.60), PW/PBW 1.42–1.52 (M 1.45), PBW/PAW 1.09–1.12 (M 1.10); apical margin feebly emarginate, front angles obtuse and barely produced anteriad; sides gently rounded in front and weakly sinuate behind the middle; hind angles subtriangularly protrudent posteriad though short, with the apices rounded and barely bent ventrad; disc slightly convex above and rather densely scattered with shallow punctures; median longitudinal line evidently impressed throughout though very narrow; basal foveae small and very shallow; four marginal setae inserted on either side of pronotal disc, three medio-anteriorly and one near hind angle.

Elytra elongate oval, widest behind the middle, more gradually narrowed towards bases than towards apices with the shoulders rather effaced; EW/PW 1.43–1.54 (M 1.49), EL/EW 1.53–1.60 (M 1.57); sculpture triploid or partly pentaploid, heterodename; primaries the widest and most strongly raised, rather frequently and irregularly segmented by large foveoles to form rows of costae or of callosities in various lengths; primary foveoles shallowly concave and usually invading the adjacent tertiaries; secondaries a little weaker and narrower than primaries, composed of frequently interrupted low costae; tertiaries a little weaker than secondaries, composed of irregularly segmented ridges or rows of granules, each of which is sometimes split into two rows or partly disappeared; striae between intervals only partly remaining as irregularly set rows of punctures; umbilicate series indicated by rather an irregularly set row of granules, at the outside of which are recognised rather dense granules.

Pro- and mesepisterna smooth, metepisterna and sides of sternites partly scattered with vague punctures and wrinkles; metacoxa trisetose; sternal sulci absent; basal four segments of male foretarsus dilated, with hair pads on the ventral surface.

Male genitalia as shown in Fig. 7 a–c; aedeagus slender and gently curved ventrad;



Figs. 1-6. Holotypes (♂) of *Carabus* spp. from the Qinling Mountains in Shaanxi Province, Central China. — 1, *Carabus* (*Rhigocarabus*) *zhubajie* sp. nov., from Zhouzhi Xian; 2, *C. (Hypsocarabus) latro qinlingensis* subsp. nov., from Chang'an Xian; 3, *C. (Tomocarabus) shaheshang* sp. nov., from Chang'an Xian; 4, *C. (Pagocarabus) crassesculptus qunqingicolor* subsp. nov., from Hu Xian; 5, *C. (Pseudocranion) taibaishanicus fani* subsp. nov., from Chang'an Xian; 6, *C. (Eccoptolabus) exiguus fanianus* subsp. nov., from Zhouzhi Xian.

apical lobe rather short with rounded tip; ostium lobe absent; ligula, or basal sclerite, reduced to a patch of pigmented granules situated transversely at a little right side of the basal part of endophallus; median portion of endophallus rather strongly inflated dorso-laterad. Female genitalia as shown in Fig. 7 d-f; outer plate of vaginal apophysis narrow and vestigial, inner plate large, almost twice as wide as long, transversely put kidney-like in shape, and lightly sclerotized.

Type series. Holotype: ♂, ca. 2,000 m alt., on the Qinling Mountains in Zhouzhi Xian, Shaanxi Province, Central China, 21~23-V-1993. Paratypes (including allotype): 2 ♂♂, 1 ♀, same data as for the holotype.

Notes. Only one species belonging to *Rhigocarabus*, *choui* DEUVE (1989, p. 228), has hitherto been known from the Qinling Mountains, and the present new species becomes a second representative of the subgenus occurring on this mountain range. Although I know DEUVE's species only from the original description, the two species seem to be readily discriminated from each other by differently shaped aedeagus.

The present new species is also comparable with *C. (R.) tewoensis*, recently described by DEUVE (1992, p. 54) from Gansu, but is discriminated from the latter by having the gular setae and the differently shaped aedeagus. Position of the hairless depressions on the ventral surface of male antennae and the sculptural conditions of pronotum and elytra are also diagnostic.

Zhubajie is the name of a sensual monster pig appearing as one of the three followers of Tangseng in the story of Xiyouji.

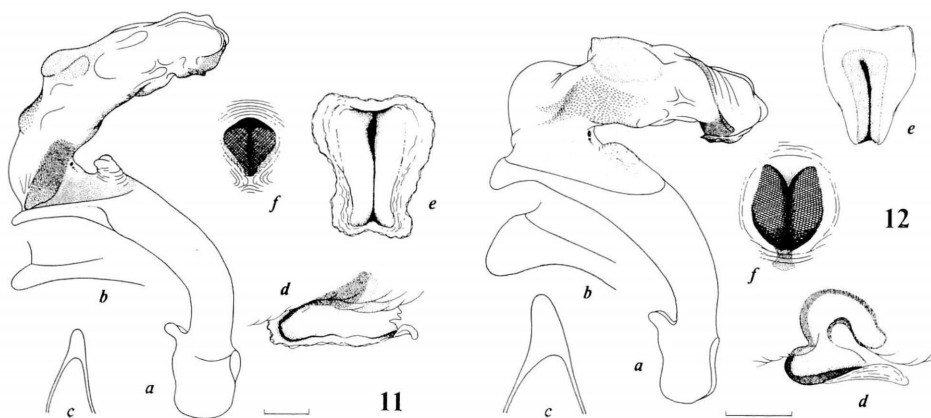
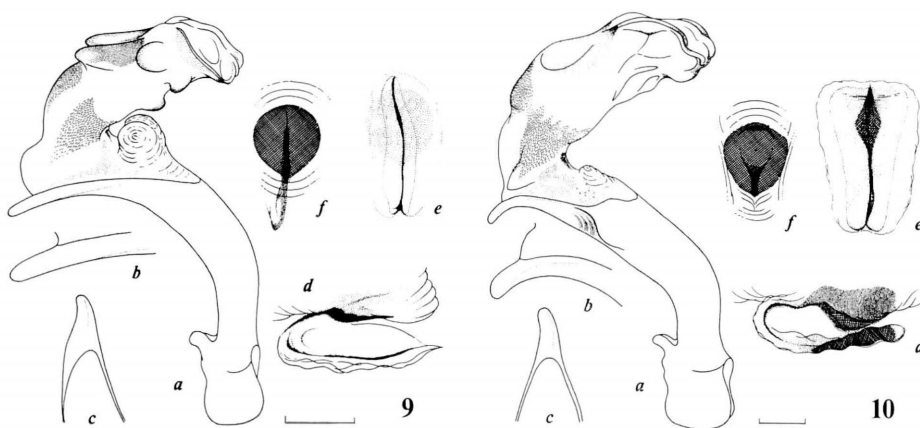
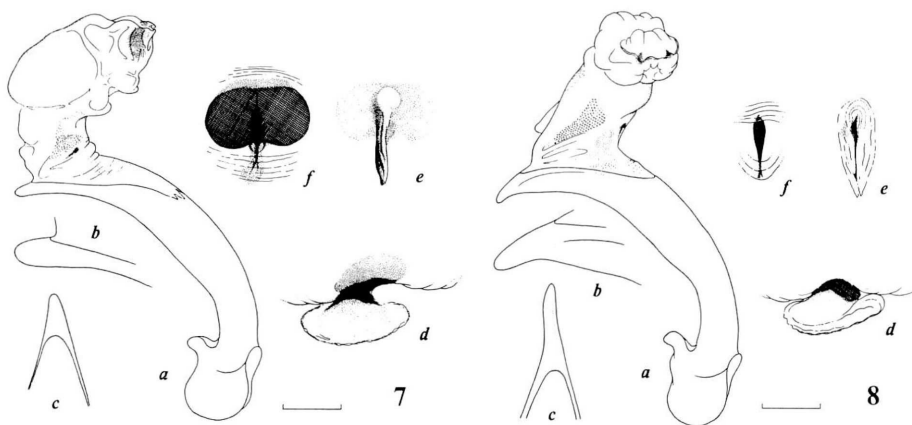
2. *Carabus (Hypsocarabus) latro qinlingensis* IMURA, sp. nov.

(Figs. 2, 8)

Length: 17.0–19.0 mm (from apical margin of clypeus to apices of elytra).

Most closely allied to the nominotypical subspecies of *Carabus (Hypsocarabus) latro* SEMENOW (1898, p. 367) described from "Lun-ngan-fu" (=Pingwu at present, situated at the northern end of Sichuan near the Gansu borders), but differs from it in the following respects: dorsal surface reddish coppery, sometimes with red-purplish lustre, while it is much darker in the nominotypical subspecies; apical margin of labrum more deeply emarginate; penultimate segment of labial palpus usually bearing

Figs. 7–12. Genital organ of *Carabus* spp. from the Qinling Mountains in Shaanxi Province, Central China. — 7, *Carabus (Rhigocarabus) zhubajie* sp. nov., from Zhouzhi Xian; 8, *C. (Hypsocarabus) latro qinlingensis* subsp. nov., from Chang'an Xian; 9, *C. (Tomocarabus) shaheshang* sp. nov., from Chang'an Xian; 10, *C. (Pagocarabus) crassesculptus qunqingicolor* subsp. nov., from Hu Xian; 11, *C. (Pseudocranion) taibaishanicus fani* subsp. nov., from Chang'an Xian; 12, *C. (Eccoitolabus) exiguus fanianus* subsp. nov., from Zhouzhi Xian. — a–c, Male genitalia; a, aedeagus with everted endophallus (right lateral view); b, apical part of aedeagus (right lateral view); c, ditto (dorsal view). — d–f, Female genitalia; d, vaginal apophysis (right lateral view); e, outer plate of vaginal apophysis (ventral view); f, inner plate of vaginal apophysis (dorsal view). Scale: 1 mm for a, 0.5 mm for b–f.



three setae, though one of them near the distal end is often absent; median tooth of mentum slightly but obviously bilobate at the apex; submentum asetose, while it is multisetose in the nominotypical subspecies; pronotum a little slenderer, with front angles obtuse and rounded, sides rather strongly contracted behind the middle, shallowly sinuate at about one-fourth from base, and then slightly but evidently divergent towards hind angles, which are subtriangularly protruded postero-laterad with the apices rather sharply pointed; elytral intervals less frequently segmented, and striae between the intervals more strongly impressed; apical lobe of aedeagus wider in lateral view, shallowly but obviously concave ventro-laterad at the right side near the base, slenderer and much more elongate in dorsal view; ostium lobe almost vestigial, and right basal lobe of endophallus being absent.

From subsp. *minshanensis* DEUVE and subsp. *huanglongensis* DEUVE, the present new subspecies is easily distinguished by the different configuration of pronotum, aedeagus and/or of elytra.

Type series. Holotype: ♂, 2,410 m alt., Chang'an Xian, 26-V-1993. Paratypes (including allotype): 7 ♂♂, 17 ♀♀, 2,410–2,650 m alt., Chang'an Xian, 25~29-V-1993. All from the Qinling Mountains in Shaanxi Province, Central China.

Notes. This is presumably the most specialised subspecies of *Carabus latro* characterised by loss or atrophy of such characters as gular setae, ostium lobe and right basal lobe of endophallus of male genitalia, which are reserved in all the other subspecies hitherto known. Both pronotum and aedeagus of the present subspecies are considerably different in shape from those of the others. In addition, it is the unique characteristic of the Qinling subspecies to have in high ratio the additional setae on the distal part of penultimate segment of labial palpus. It is possible that this race is distinct specifically from the Sichuanese ones, but here I provisionally describe it as a subspecies of the latter.

3. *Carabus (Tomocarabus) shaheshang* IMURA, sp. nov.

(Figs. 3, 9)

Length: 14.8–16.6 mm (from apical margin of clypeus to apices of elytra).

Black, mat, except for mandibles and tarsi which are reddish brown. Buccal appendages and antennae also reddish brown especially in the basal part of each segment.

Head except for mandibles subquadrate, a little wider than long, with large and strongly protrudent eyes; apical margin of labrum moderately emarginate; clypeus subquadrate, a little dilated posteriad, nearly as wide as or a little wider than labrum; frontal furrows shallowly concave, with the surface strongly and irregularly rugulose; frons gently convex above, with the surface weakly rugoso-punctate; mandibles short and stout, rather strongly arcuate inwards and sharply pointed at the apices; retinaculum of mandible bidentate, the right one being a little smaller than the left; apical segments of palpi slightly dilated in both sexes; penultimate segment of labial

palpus bisetose; median tooth of mentum triangularly protrudent anteriad, shorter than the lateral lobes, with the apex often a little re-entrant at the middle; submentum bisetose or sometimes bearing a single additional seta inside, with the surface irregularly rugulose; antennae filiform, reaching basal two-fifths of elytra in male and reaching basal quarter in female, entirely pubescent from segment 5, with hairless ventral depressions from segment 6 to 10 in male; relative lengths of scape and segments 2–4 as follows:— 1: 0.60: 1: 0.75.

Pronotum subquadrate, wider than long, and widest a little before the middle; PW/HW 1.43–1.48 (M 1.45), PW/PL 1.31–1.35 (M 1.33), PW/PAW 1.43–1.52 (M 1.48), PW/PBW 1.28–1.32 (M 1.29), PBW/PAW 1.11–1.19 (M 1.15); apical margin slightly emarginate, front angles obtuse and barely produced anteriad; sides widely and weakly arcuate in front, shallowly sinuate behind the middle, then subparallel towards hind angles which are weakly protrudent posteriad with the apices subtriangularly pointed; disc gently convex above, rather densely scattered with irregular wrinkles and large shallow punctures on the surface; median longitudinal line narrow and shallowly impressed, partly unclear; basal foveae rather deeply concave though small; six or seven marginal setae inserted on either side of pronotal disc, five or six medio-anteriorly, one near hind angle.

Elytra ovate and convex, widest at about the middle or slightly behind that level, more strongly contracted towards apices than towards bases, with the shoulders rather distinct; EW/PW 1.42–1.57 (M 1.51), EL/EW 1.35–1.41 (M 1.38); sculpture heptaploid heterodyname; primaries the most strongly prominent, composed of rather frequently segmented short costae or callosities in various lengths; primary foveoles rather deeply concave and usually invading the adjacent quarternaries; both secondaries and tertiaries narrower and more weakly convex than in primaries, composed of frequently and irregularly segmented rows of costae; quarternaries weaker than the other intervals, and usually reduced to rows of granules; striae between intervals only partly recognised as sparsely set rows of fine punctures; umbilicate series indicated by rather a regularly set row of granules, at the outside of which are recognised rather dense granules.

Pro- and mesepisterna smooth, metepisterna and sides of sternites vaguely punctate and finely wrinkled; metacoxa bisetose, proximal seta being absent; sternal sulci completely and prominently carved; basal four segments of male foretarsus dilated, with hair pads on the ventral surface.

Male genitalia as shown in Fig. 9 a–c; aedeagus widely and rather strongly arcuate ventrad; its apical lobe very slender, almost parallel-sided with rounded tip in lateral view, subtriangularly pointed and moderately sinuate on the right lateral margin in dorsal view; ostium lobe large and robust, with the apex bilobate. Female genitalia as shown in Fig. 9 d–f; outer plate of vaginal apophysis narrow and almost transparent except for the longitudinal mid-line which is pigmented and a little sclerotized; inner plate circular in outline, weakly sclerotized and somewhat cup-like.

Type series. Holotype: ♂, ca. 1,900 m alt., Chang'an Xian, 9–V–1993. Para-

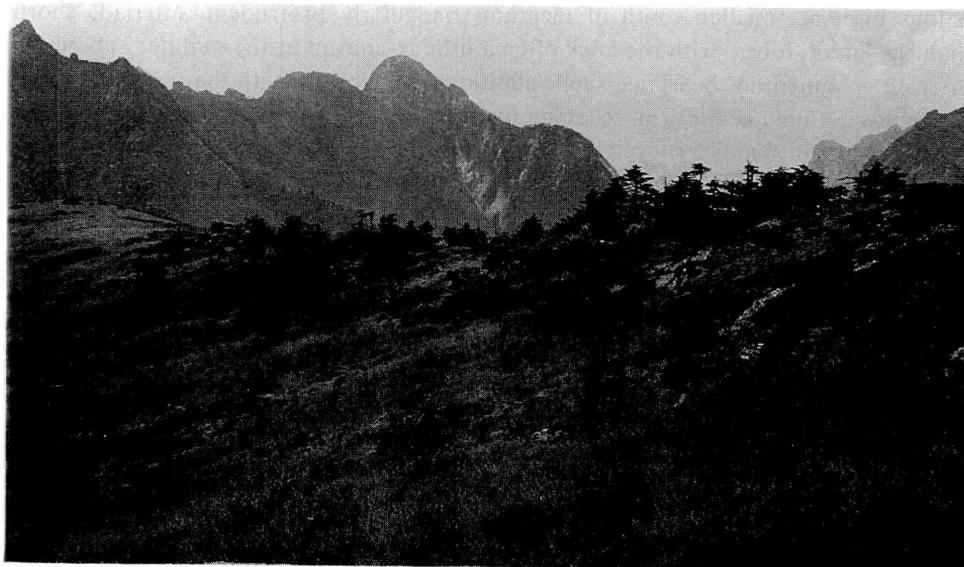


Fig. 13. The habitat of *Carabus* (*Hypsocarabus*) *latro qinlingensis* subsp. nov., *C. (Tomocarabus)* *shaheshang* sp. nov., *C. (Pagocarabus)* *crassesculptus qunqingicolor* subsp. nov., and *C. (Pseudocranion)* *taibaishanicus fani* subsp. nov. (subalpine zone of the Qinling Mountains in Chang'an Xian, ca. 2,500 m in altitude).

types (including allotype): 8 ♂♂, 3 ♀♀, same data as for the holotype; 3 ♀♀, ca. 2,000 m alt., Hu Xian, 11-V-1993; 1 ♀, ca. 1,850 m alt., Taibai Xian, 19-V-1993; 7 ♂♂, 1 ♀, ca. 2,000 m alt., Zhouzhi Xian, 21-V-1993. All from the Qinling Mountains in Shaanxi Province, Central China.

Notes. This new species is very similar in external features to *Carabus* (*Tomocarabus*) *fraterculus* REITTER distributed from Korea and the adjacent regions, but is easily distinguishable from it by less widely dilated terminal segments of buccal palpi and different configuration of aedeagus.

It may also be comparable with *C. (T.) shaanxiensis* recently described by DEUVE (1991, p. 105) from "Ankang Xian" situated in the southernmost part of Shaanxi Province near the Sichuan and the Hubei borders. Since the Ankang Xian species was described on the basis of a single female specimen without accompanying illustrations, careful consideration is necessary to determine its true taxonomic position. Judging from the original description, however, the Qinling species seems to be discriminated from the Ankang Xian one at least by the following five characters: 1) size a little smaller; 2) penultimate segment of labial palpus always with two setae, while it is trisetose in the latter; 3) antennae longer, reaching basal quarter of elytra in female, while they reach basal one-sixths in the latter; 4) pronotum with five to six marginal setae, whereas it bears three or four in the latter; 5) sternal sulci prominently carved, though finely so in the latter.

The name of this new species, *shaheshang*, comes from that of a water sprite who

appears as one of the three followers of Tangseng in the story of Xiyouji.

4. *Carabus (Pagocarabus) crassesculptus qunqingicolor* IMURA, subsp. nov.

(Figs. 4, 10)

Length: 21.8–26.0 mm (from apical margin of clypeus to apices of elytra).

Closely allied to subsp. *rugosissimus* BREUNING (1943, p. 110)¹⁾ described from “Peiling-Chan” (the name of a mountain range stretching from west to east between Minshan and Qinling, at the southern end of Gansu), and doubtless belongs to the same subspecies-group, but distinguished from it by the following respects: dorsal surface more light bluish and not so strongly purplish as in *rugosissimus*; pronotum slenderer, with the sides more weakly rounded in front, and hind angles more sharply pointed; elytral intervals more weakly raised, with the elevated parts less frequently fused with one another; preapical emargination of elytra shallower; aedeagus more strongly tumid bilaterad a little before the middle, with the apical lobe slenderer and more strongly arcuate ventrad.

Type series. Holotype: ♂, ca. 2,000 m alt., Hu Xian, 11–V–1993. Paratypes (including allotype): 2 ♂♂, 2 ♀♀, same data as for the holotype; 1 ♂, ca. 1,500 m alt., Baoji Xian, 13–V–1993; 11 ♂♂, 3 ♀♀, ca. 2,000 m alt., Zhouzhi Xian, 21–23–V–1993; 1 ♀, 2,410 m, alt., Chang’an Xian, 26–V–1993. All from the Qinling Mountains in Shaanxi Province, Central China.

Notes. This new subspecies is named after its unique coloration, “Qunqing”, which means purplish blue in Chinese.

5. *Carabus (Pseudocranion) taibaishanicus fani* IMURA, subsp. nov.

(Figs. 5, 11)

Length: 21.0–26.2 mm (from apical margin of clypeus to apices of elytra).

Distinguished from the nominotypical subspecies by the following characters: the second antennal segment obviously shorter than the fourth, though the former is longer than the latter in the nominotypical subspecies; pronotum a little slenderer (PW/PL 1.26–1.42, M 1.33, while it is 1.47 in the nominotypical subspecies); elytral sculpture not typically triploid as in the nominotypical subspecies, but is regarded to be penta- or heptaploid, i.e., tertiaries not clearly recognisable as a single row of granules, but usually split into three to five irregularly set rows of granules.

Male genitalia as shown in Fig. 11 a–c; aedeagus rather abruptly curved ventrad at the basal third, subcylindrical and almost parallel-sided in median portion, obviously

1) *Carabus (Pagocarabus) crassesculptus rugosissimus* BREUNING, stat. nov.

I was able to examine the holotype specimen of *C. rugosissimus* BREUNING in the course of the present study. Judging mainly from close similarity in the conformation of genitalia, BREUNING’s species is considered to be a local race of *C. crassesculptus* KRAATZ, though rather peculiar in external features. It is therefore downgraded to a subspecies of the latter.

protuberant right laterad at about apical quarter, then slightly concave latero-ventrad on the right side, with the apex short and rounded; ostium lobe rather slender, with the apex slightly bilobate. Female genitalia as shown in Fig. 11 d-f; outer plate of vaginal apophysis about 1.7 times as long as wide, widest near the apex, obviously sinuate behind the middle, with the anterior margin shallowly emarginate, the posterior being re-entrant at the middle; inner plate almost round-shaped or a little piriform, somewhat cup-like, and strongly pigmented and sclerotised along the anterior margin and the longitudinal mid-line.

Type series. Holotype: ♂, 2,410–2,760 m alt., on the Qinling Mountains in Chang'an Xian, Shaanxi Province, Central China, 25~29-V-1993. Paratypes (including allotype): 42 ♂♂, 36 ♀♀ same data as for the holotype.

Notes. Although I regarded the Chang'an Xian specimen as belonging to *Carabus* (*Pseudocranion*) *taibaishanicus* DEUVE described from the "Taibai Mountains", which mean either the Qinling Mountains or a part of them near Mt. Taibai Shan, specific determination of the former is not definitive at present, since the latter was described on the basis of a single female specimen. Discovery of males corresponding to DEUVE's form may solve the problem on the taxonomic relationship between these two races.

6. *Carabus* (*Eccoptolabrus*) *exiguus fanianus* IMURA, subsp. nov.

(Figs. 6, 12)

Length: 16.7–18.6 mm (from apical margin of clypeus to apices of elytra).

Reddish coppery to dark brown except for the elevated parts of elytra which are black; venter and appendages also black, though the antennae are a little reddish.

Head except for mandibles subquadrate and longer than wide; apical margin of labrum deeply emarginate; frontal furrows moderately or rather deeply concave, with the surface strongly rugoso-punctate as well as frons and dorsal surface of head behind eyes; retinaculum of right mandible bidentate, its anterior tooth much larger than the posterior; that of left mandible also bidentate, though the anterior tooth is subequal in length to the posterior which fuse to the basal inner tooth; apical segment of galea concave inwards, with the dorsal margin edged and slightly emarginate in apical half; apical segments of palpi triangularly dilated, more strongly so in male; penultimate segment of labial palpus bisetose; median tooth of mentum shorter than lateral lobes, with the apex triangularly pointed; submentum asetose, with the surface finely and transversely wrinkled; antennae nearly extending to the middle of elytra in male and reaching basal two-fifths of them in female; relative lengths of scape and segment 2–4 as follows:—1: 0.87: 1: 0.80.

Pronotum strongly cordate, widest a little before the middle, more strongly narrowed towards base than towards apex which is shallowly emarginate, with front angles obtuse and barely produced anteriorly; sides widely arcuate in front, strongly contracted posteriorly, shallowly sinuate at basal two-fifths, and then almost parallel-sided towards hind angles which are slightly protruded posteriorly and subtriangularly

pointed; PW/HW 1.24–1.33 (M 1.28), PW/PL 1.17–1.27 (M 1.21), PW/PAW 1.40–1.50 (M 1.46), PW/PBW 1.55–1.63 (M 1.60), PBW/PAW 0.88–0.94 (M 0.91); disc less strongly convex above, with the surface scabrous and not clearly punctate; three to four setae inserted on either side of discal margin, two or three medio-anteriorly and one near hind angles; median longitudinal line narrow but clearly impressed in the central part, unclear near apex and gradually fused to the longitudinally impressed short grooves near base; basal foveae longitudinally and rather deeply concave.

Elytra elongate oval and convex, widest a little behind the middle, more strongly contracted towards apices than towards bases; EW/PW 1.55–1.77 (M 1.63), EL/EW 1.55–1.67 (M 1.63); sculpture triploid heterodyname; primaries the widest and strongly raised, rather frequently segmented by large foveoles to form rows of callosities with various lengths; secondaries far more frequently segmented than primaries, indicated by rows of short costae; tertiaries reduced to rows of granules; elytral surface between intervals rather densely scattered with small granules.

Pro- and mesepisterna smooth, metepisterna and sides of sternites vaguely rugoso-punctate; metacoxa bisetose, proximal seta being absent; sternal sulci either very finely impressed or almost disappeared.

Male genitalia as shown in Fig. 12 a–c; aedeagus rather robust, widest at about the middle, gently arcuate, and rather acutely hooked ventrad near the apex; apical lobe short and subtriangular in shape, with broadly rounded tip in lateral view, and slightly arcuate right laterad in dorsal view; ostium lobe unilobate and not so strongly raised; aggonoporus subtriangularly produced and a little pigmented. Female genitalia as shown in Fig. 12 d–f; outer plate of vaginal apophysis nearly oblong, with marked pigmentation along the longitudinal mid-line; inner plate extraordinarily convex above, strongly sclerotized, almost round-shaped with the anterior margin deeply and triangularly re-entrant at the middle in dorsal view, and forming slightly deformed C in lateral view.

Type series. Holotype: ♂, ca. 2,000 m alt., on the Qinling Mountains in Zhouzhi Xian, Shaanxi Province, Central China, 21 ~ 23-V-1993. Paratypes (including allotype): 5 ♂♂, 3 ♀♀, same data as for the holotype.

Notes. The present subspecies seems most closely allied to the nominotypical one described from Sun-pan (=Songpan at present, situated at the northern part of Sichuan), but distinguished from it by having much coppery reddish coloration, longer antennae, multiple marginal setae of pronotum, and differently sculptured elytral surface. From subsp. *nivium* BREUNING described from “Mienning” of Sichuan, it is also discriminated by different coloration and longer antennae as well as differently shaped pronotum and more strongly raised elytral intervals. From the peculiar Gansu subspecies, *lanzhouicus* DEUVE, this new subspecies is easily separable by the distinctly different external features, though the aedeagal conformation of the latter bears a striking resemblance to that of the former.

The subgenus *Eccoptolabrus* was originally established by SEMENOW (1898, p. 397) for a peculiar Sichuan species, named *exiguus* at the same time. Although once

regarded as a synonym of *Pagocarabus* by BREUNING in his monograph (1934, p. 1020), this unique subgenus was recently revived by DEUVE as a distinct one, and was placed between *Leptoplesius* and *Pagocarabus* in his catalogue (1991, p. 120).

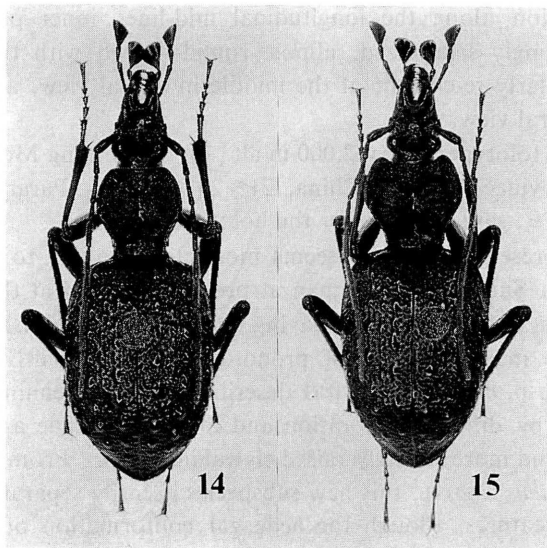
In my view, however, this subgenus has certain relationship with *Coptolabrus* as was already pointed out by SEMENOW in having several common characteristics, above all basic structure of the genital organ and peculiar conformation of the apical segment of galea, and should be placed at the side of the group of *Damaster*–*Coptolabrus*–*Acoptolabrus*. Also it has certain relationship with *Lasiocoptolabrus* IMURA recently described from the same mountain range, though the former is clearly separable from the latter by different configuration of the mandibular retinacula and smaller number of setae on the penultimate segment of labial palpus as well as atrophy of sternal sulci and unilobate ostium lobe of male genitalia.

At the southwestern part of Zhouzhi Xian, this new subspecies occurs almost sympatrically with *C. (Lasiocoptolabrus) sunwukong* IMURA, though the collecting site of the former is a little higher in altitude than that of the latter. It is worth noting that both the species from the above locality have a close resemblance to each other in the coloration and the conformation of elytral sculpture, which seems to suggest that they show a tendency of convergence in the external features.

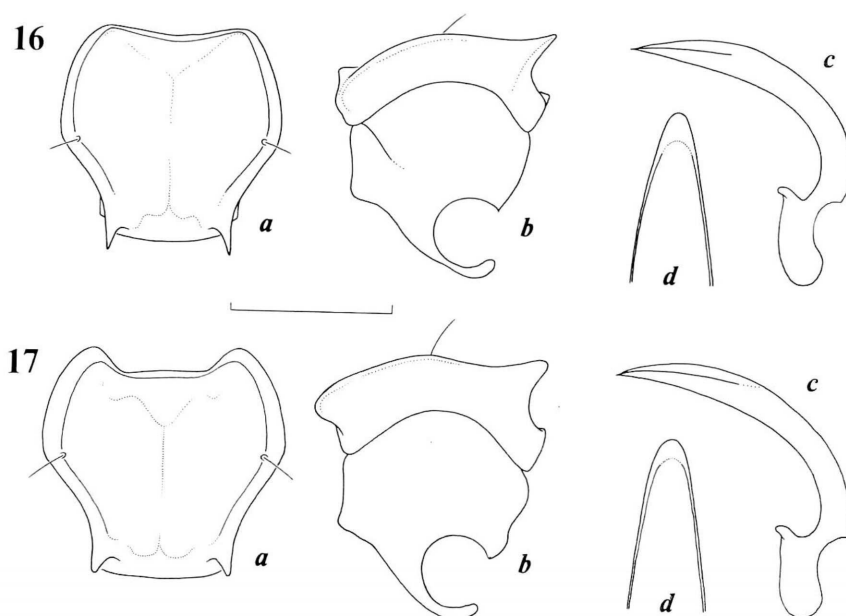
7. *Cychrus bispinosus baojiensis* IMURA, subsp. nov.

(Figs. 14, 16)

Length: 14.0–16.7 mm (from apical margin of clypeus to apices of elytra).



Figs. 14–15. Holotypes (♂) of *Cychrus bispinosus* subsp. from the Qinling Mountains in Shaanxi Province, Central China. — 14, *C. b. baojiensis* subsp. nov., from Baoji Xian; 15, *C. b. huxianensis* subsp. nov., from Hu Xian.



Figs. 16–17. Pronota and aedeagi of *Cychrus bispinosus* subspp. — 16, *C. b. baojiensis* subsp. nov., ♂, from Baoji Xian; 17, *C. b. huxianensis* subsp. nov., ♂, from Hu Xian; a, pronotum (dorsal view); b, ditto (left lateral view); c, aedeagus (right lateral view); d, apical part of aedeagus (dorsal view). Scale: 2.5 mm for a and b, 2 mm for c, 1 mm for d.

Distinguished from the nominotypical subspecies mainly by differently shaped prothorax: viewed dorsally, widest part of pronotum is situated more backwards than in the nominotypical subspecies, hind angles spine-like, strongly protrudent posteriad with sharply pointed apices which extend obviously to the basal margin of pronotum; viewed laterally, pronotal margin more strongly arcuate dorsad especially in apical half. According to the original description, the fourth antennal segment of the nominotypical subspecies is entirely glabrous, whereas it is pubescent at the distal end in the present new subspecies. The aedeagal apex is very sharply pointed at the tip in lateral view, and rather broadly rounded in dorsal view.

Type series. Holotype: ♂, ca. 1,280 m alt., on the Qinling Mountains in Baoji Xian, Shaanxi Province, Central China, 12–V–1993. Paratypes (including allotype): 4 ♂♂, 3 ♀♀, same locality as for the holotype, 12–19–V–1993.

8. *Cychrus bispinosus huxianensis* IMURA, subsp. nov.

(Figs. 15, 17)

Length: 14.2–16.7 mm (from apical margin of clypeus to apices of elytra).

Readily distinguished both from the nominotypical and the above subspecies by conspicuously different shape of prothorax: pronotum obviously wider than long,

widest at about or a little before the middle, with the widest part strongly protrudent laterad and subangulate; apical margin deeply and trapezoidally emarginate due to strongly produced front angles which are subtriangularly pointed though the apices are rather broadly rounded; hind angles robust and much less sharply pointed than in the other subspecies. Distal end of the fourth antennal segment is also pubescent as in the above subspecies. Aedeagal apex a little shorter and a little more broadly rounded in dorsal view than in the above subspecies.

Type series. Holotype: ♂, ca. 1,300 m alt., on the Qinling Mountains in Hu Xian, Shaanxi Province, Central China, 11-V-1993. Paratypes (including allotype): 1 ♂, 4 ♀♀, same data as for the holotype.

要 約

井村有希: 中国陝西省秦嶺山脈のオサムシ. — 中国陝西省南部の秦嶺山脈から, オサムシの2新種, 4新亜種とセダカオサムシの2新亜種を記載した. 1) 周至県の高所から *Carabus (Rhigocarabus) zhubajie* sp. nov. を記載した. 本亜属のなかでは比較的大型の種で, 秦嶺山脈からすでに知られている *C. (R.) choui* DEUVE とは陰茎の形態がまったく異なる. また, 甘肅省の *C. (R.) tewoensis* DEUVE にも近いが, 下唇亜基節に2本の剛毛を有し, ♂ 触角腹面の無毛凹陷部の位置が異なるほか, 前胸背板と上翅の彫刻, ならびに陰茎の形態にも差がみられる. 2) 長安県の高所から *C. (Hypsocarabus) latro* SEMENOW の新亜種 *qinlingensis* subsp. nov. を記載した. 既知の3亜種のなかでは, 四川省北部の平武付近から記載された基亜種に比較的近いが, 下唇亜基節の剛毛の欠如や, ♂ 交尾器葉片ならびに内袋基部右側膨隆部の萎縮, といった退化形質がいちじるしいうえ, 前胸背板と陰茎の形態が異なり, また下唇肢亜端節には通常3本の剛毛が認められるなど, 別種とみなしてもよいほどの顕著な形態的相違がみられる. 3) *C. (Tomocarabus) shaheshang* sp. nov. は, 朝鮮半島とその近隣に分布する *C. (T.) fraterculus* REITTER によく似ているが, 口肢末端節はあまりつよく拡がらず, 陰茎の形態もまったく異なるので識別はやさしい. 長安県から太白県にいたる地域の標高 2,000 m 付近に生息している. 本省からはほかに, 同亜属に属する種として, 安康県から記載された *C. (T.) shaanxiensis* DEUVE が知られている. この種は1♀のみの標本に基づいて記載されたうえ, 原記載に図が付けられていないので, 正確な比較は困難だが, 記載文から判断するかぎり秦嶺の種と同種であるとは考えにくい. 1) と 3) の新種名は, それぞれ猪八戒と沙和尚 (沙悟浄) を意味し, 筆者によりすでに同山脈から記載されている *C. (Lasiocoptolabrus) sunwukong* (孫悟空) とどうよう, いずれも西遊記に登場するキャラクターにちなむものである. 4) *C. (Pagocarabus) crassesculptus* KRAATZ の新亜種 *qunqingicolor* subsp. nov. を記載した. 甘肅省南部の亜種 *rugosissimus* BREUNING (これまで独立種として扱われてきたが, 正基準標本を検した結果, 交尾器の基本形態は *C. crassesculptus* のそれとほとんど変わりがないので, 本論文においてその1亜種に降格した) に近いが, 背面の色彩はよりつよく空色を帯び, 前胸背板と上翅彫刻, ならびに陰茎の形態が異なる. 長安県から宝鸡県にかけての標高 1,500 m 以上の地域に分布している. 5) 長安県の高所から *C. (Pseudocranion) taibaishanicus* DEUVE の新亜種 *fani* subsp. nov. を記載した. 基亜種は1♀のみの標本に基づいて記載されたものなので, しょうらい同種の ♂ に相当する標本が得られれば, 長安県の種の所属に関してあらたな見解が必要になるかもしれない. 6) 周至県の高所から *C. (Eccoptolabrus) exiguus* SEMENOW の新亜種 *fanius* subsp. nov. を記載した. 四川省の松潘か

ら記載された基亜種に比較的近いが、色彩はよりつよく赤銅色味を帯び、触角が長く、前胸背板側縁剛毛の数が多く、上翅の彫刻も異なる。本亜属はこれまで、*Pagocarabus*に近い位置に置かれることが多かったが、交尾器や小顎外葉末端節の形態などから、カブリモドキやクビナガオサムシなどのグループに類縁が近いものと思われる。周至県の南西部において、本新亜種は *C. (Lasiocoptolabrus) sunwukong* IMURA とほぼ同所的に生息しており、なおかつ両者の色彩や上翅彫刻はたがいによく似ていて、形態的に収斂現象を示しているとみられる点は興味深い。7) *Cychrus bispinosus* DEUVE のふたつの新亜種、*baojiensis* subsp. nov. と *huxianensis* subsp. nov. を、宝鸡県と戸県からそれぞれ記載した。いずれも前胸背板の形態に大きい特徴があるので、その識別は容易である。

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